DEPARTMENT OF ENVIRONMENTAL PROTECTION
MONTGOMERY COUNTY • MARYLAND

Snowdens Mill/Falling Creek
Stream Restoration

Public Meeting

December 5, 2017

RK&K
Responsive People | Creative Solutions

Introductions

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- Beth Forbes, PE
  - Project Manager, Montgomery County DEP/JV
- Miranda Reid
  - Watershed Planner, Montgomery County DEP
- Lucia Noya, PE
  - Project Manager, Rummel, Klepper & Kahl, LLP (RK&K)
- Jason Coleman, PE
  - Project Designer, Rummel, Klepper & Kahl, LLP (RK&K)

Today's Agenda

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- Watershed Management Overview
- Project Background
- Existing Conditions
- Restoration Goals and Approach
- Construction: What to Expect
- Project Schedule and Next Steps

Sources of Water

- About 97% is salt water
- About 2% is frozen
- Only 1% is available for drinking water
  - Country – 57% surface water
  - Maryland – 74% surface water
- Potential for greater impacts from runoff in Maryland

Montgomery County, MD

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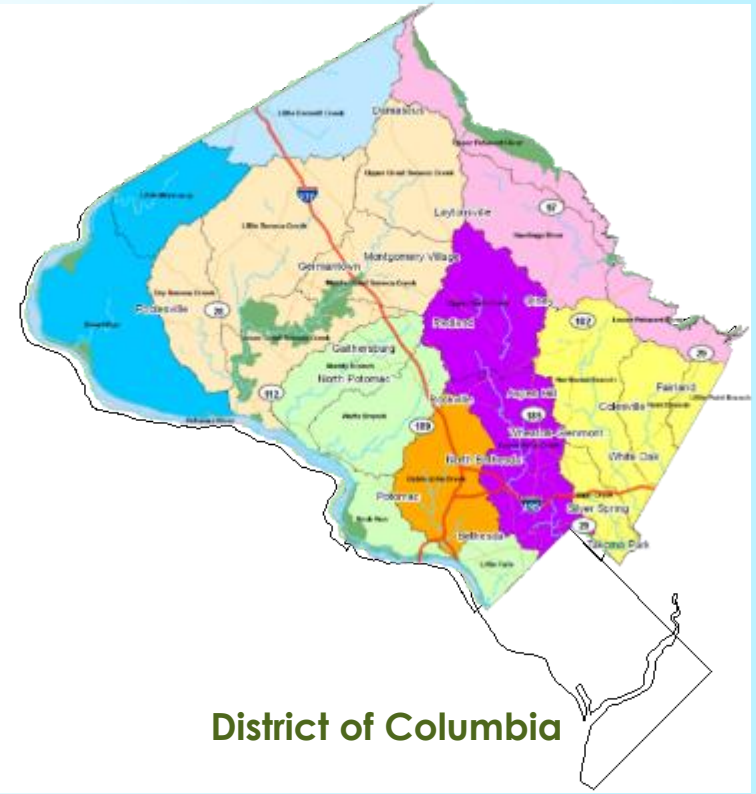
- 500 sq. miles
- Over 1,000,000 people
  - Second only to Baltimore City within Maryland in average people per square mile
  - 184 languages spoken
- About 12% impervious surface overall
  - About the size of Washington DC
- Over 1,500 miles of streams
- Two major river basins:
  - Potomac
  - Patuxent
- Eight local watersheds



***Impervious**: Not allowing water to soak through the ground*

What is a Watershed?

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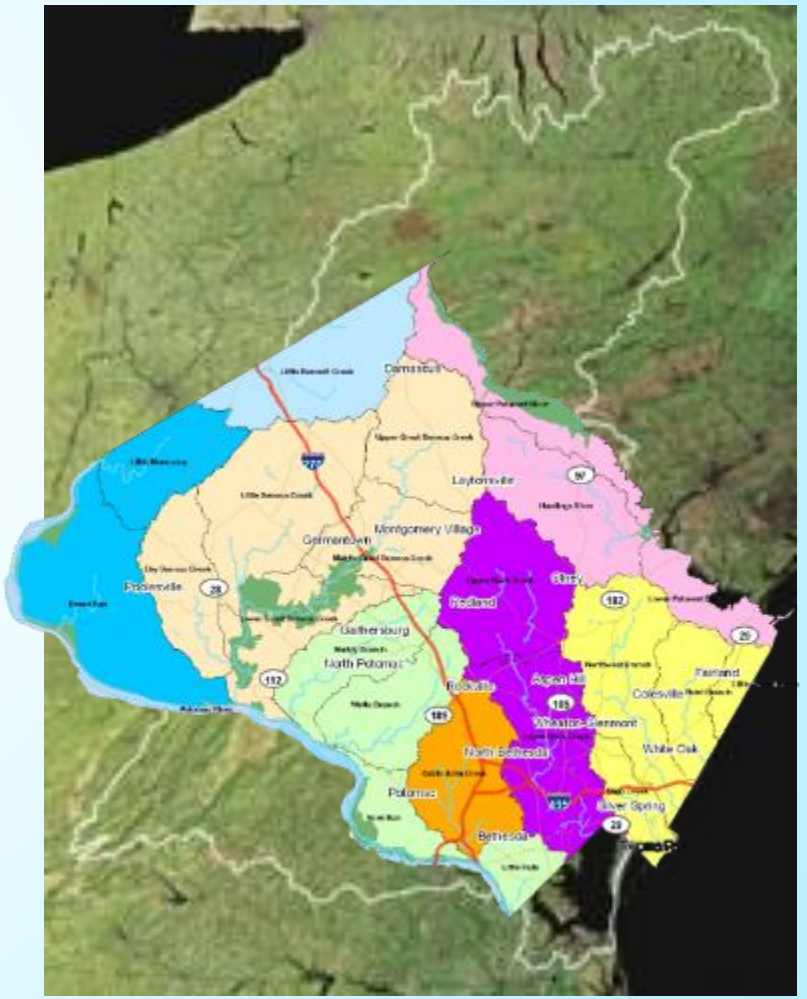
- A ***watershed*** is an area from which the water above and below ground drains to the same place.

- Different scales of watersheds:
  - Chesapeake Bay
  - Eight local watersheds (Anacostia)
  - Smaller Tributary (Paint Branch)
  - Neighborhood (to a storm drain)



Anacostia Watershed

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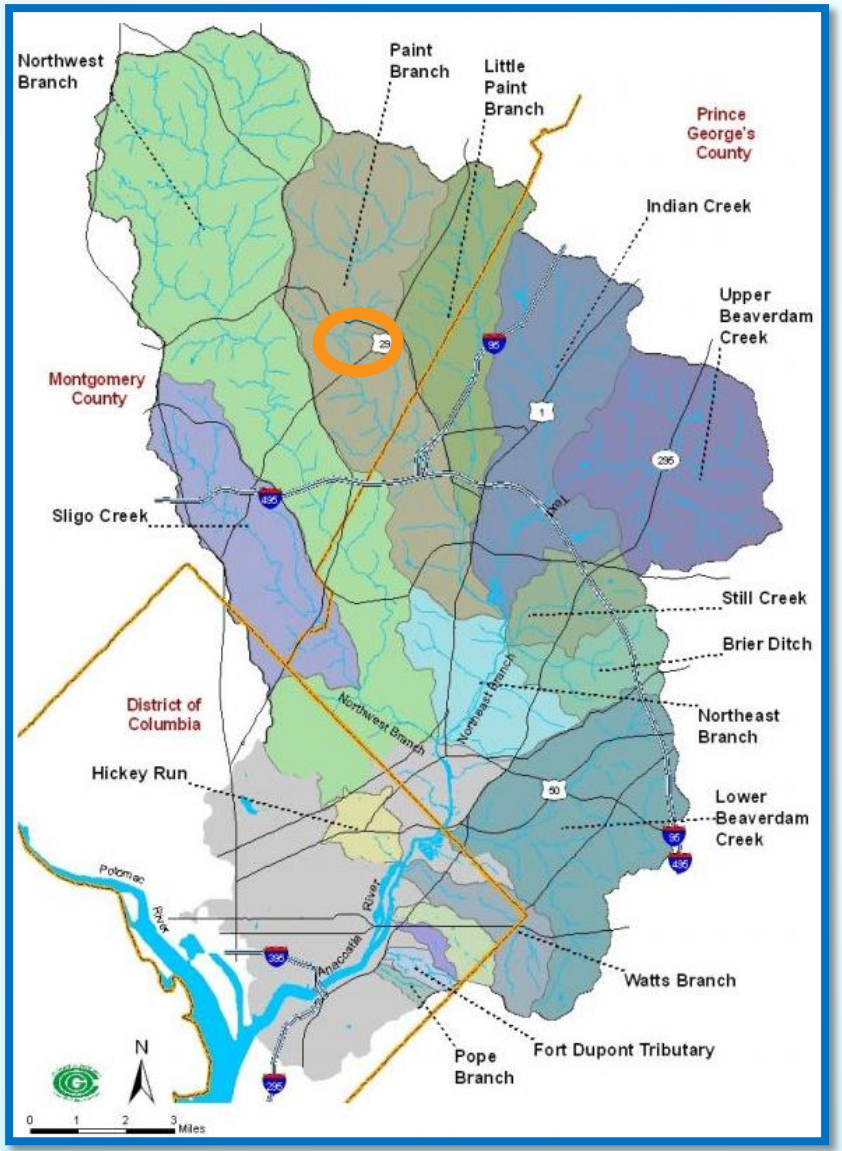

Paint Branch Watershed

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- **Paint Branch is a Class III Stream**
  - Growth and propagation of brown trout
- **Special Protection Area (SPA)**
  - High-quality or unusually sensitive water resources or environmental features
  - Resources threatened by land use changes (such as development) unless special protective measures are taken
  - Developers must follow strict requirements to reduce threat to water resources and environmental features

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What is Runoff?

Water that does not soak into the ground becomes surface runoff. This runoff flows over hard surfaces like rooftops, driveways and parking lots collecting potential contaminants and flows:

- **Directly into streams**
- **Into storm drain pipes, eventually leading to streams**
- **Into stormwater management facilities, then streams**

Two Major Issues:
Volume/Timing of Runoff
Water Quality

Land Use Change

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Historic Aerial - 1951

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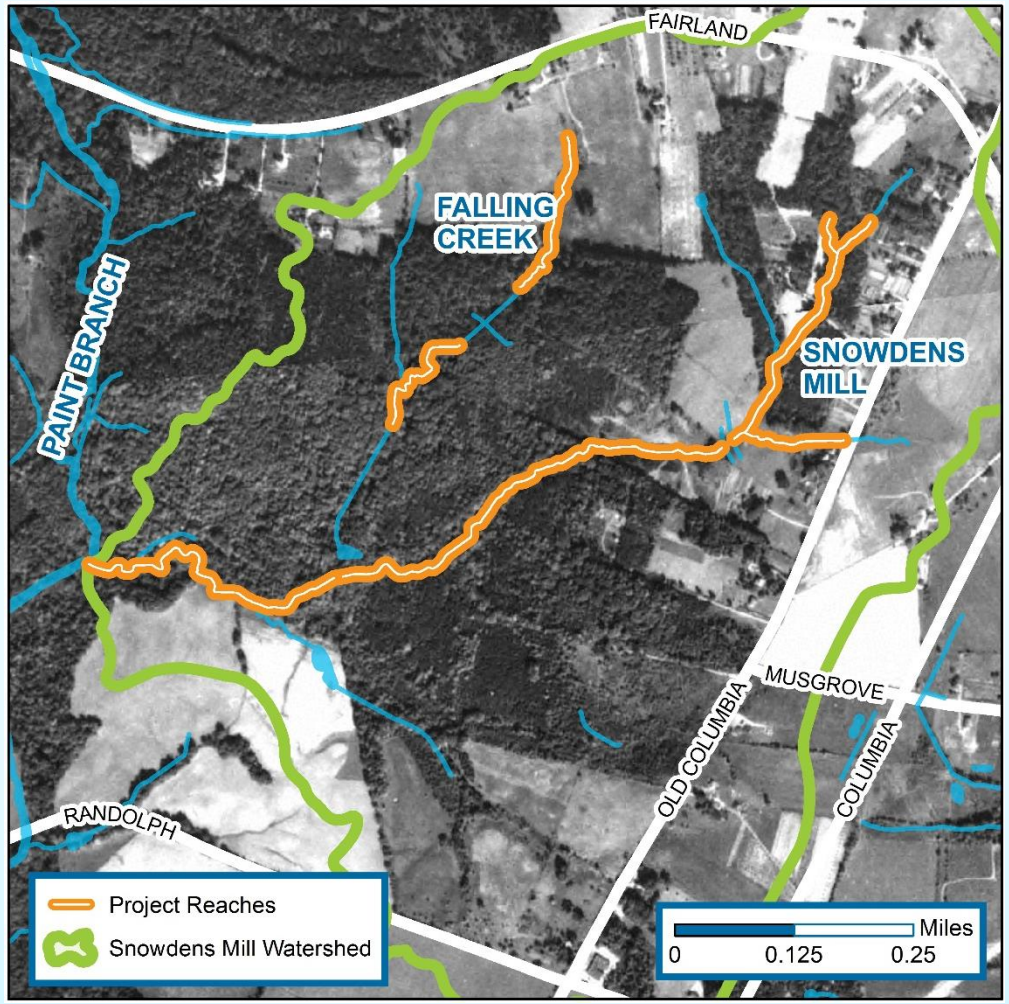

Historic Aerial - 1970

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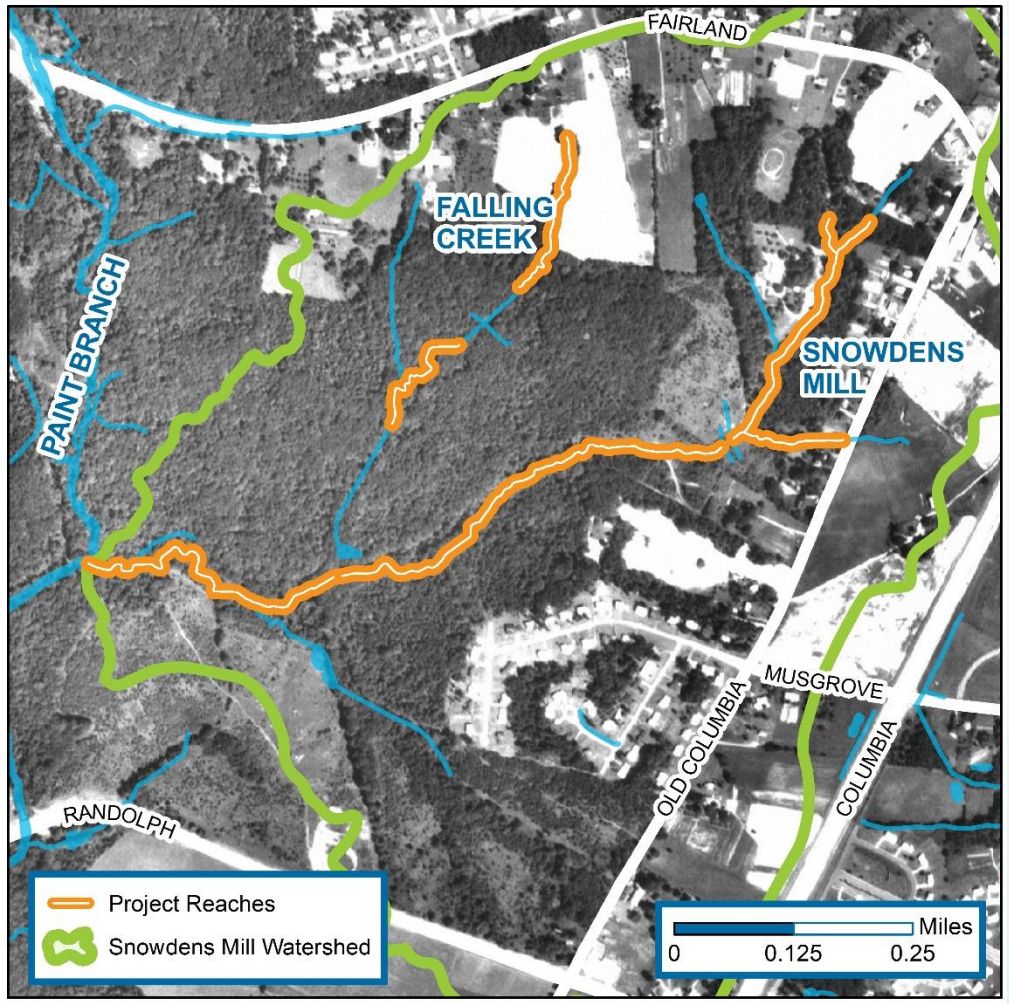

Historic Aerial - 1979

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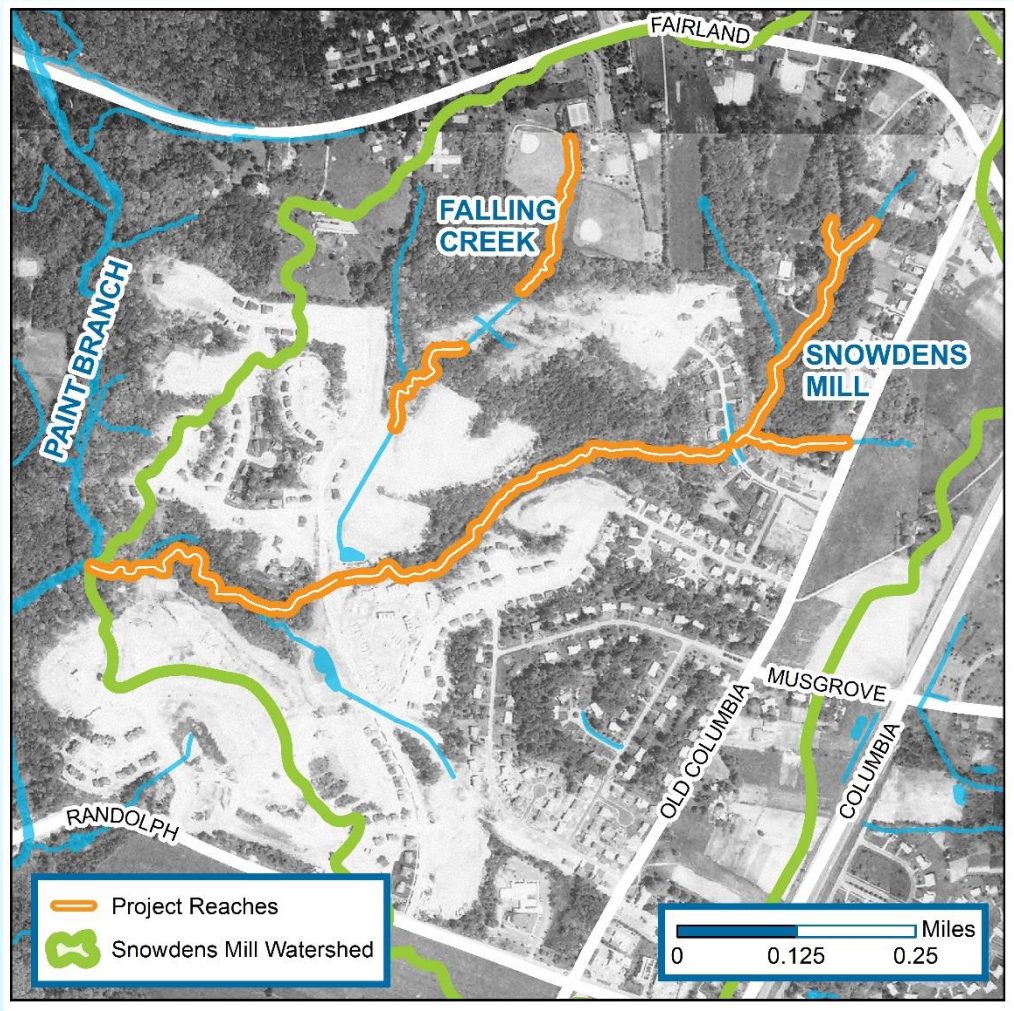

Historic Aerial - 1993

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Historic Aerial - 2017

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Historic Aerial - 2017

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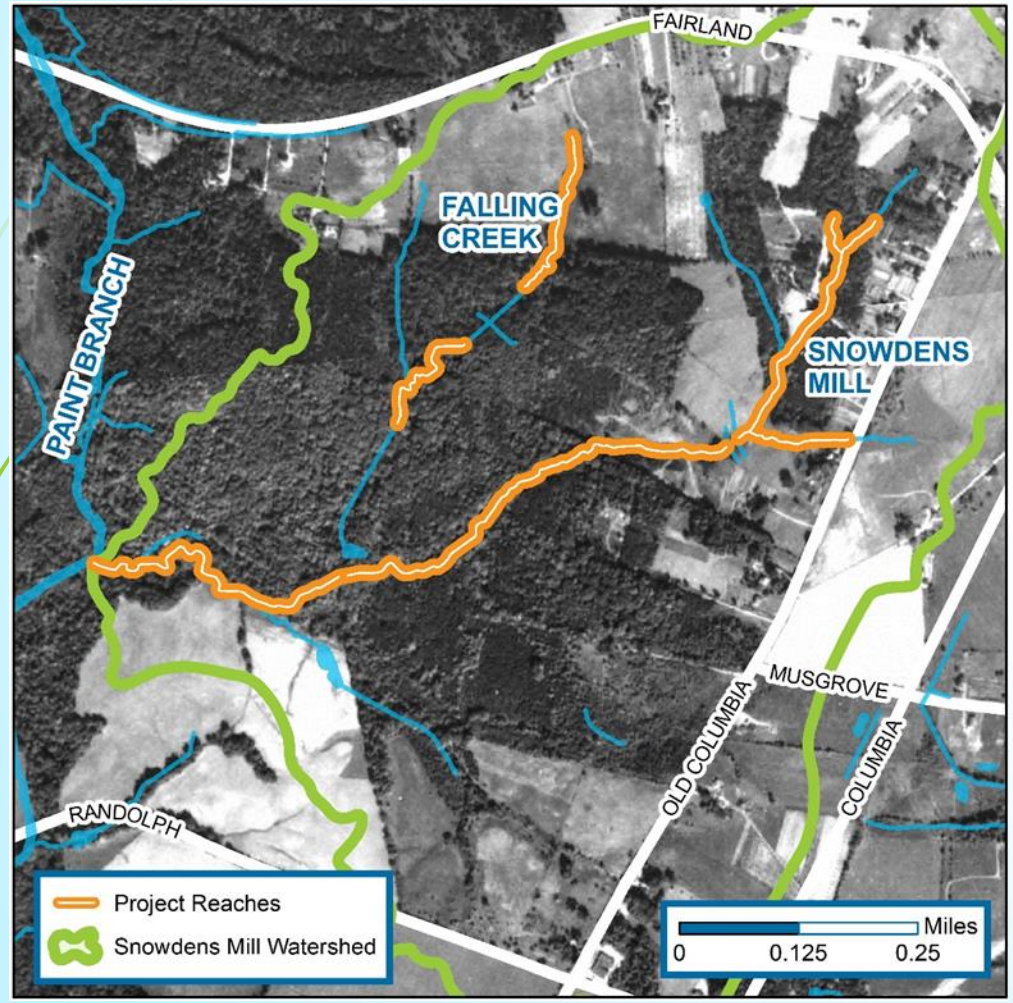

Runoff

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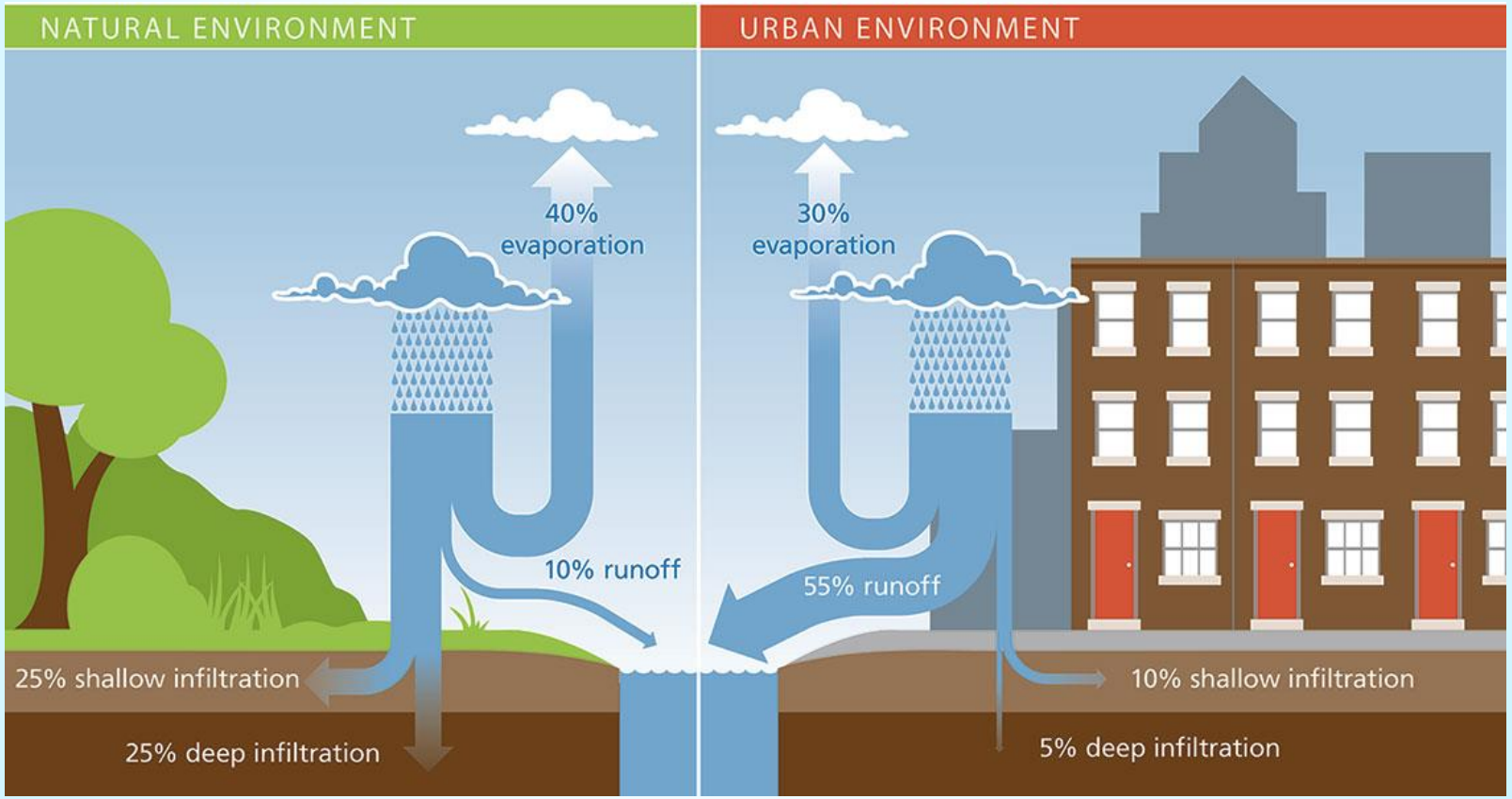

Philadelphia Water Department

Urban vs. Forested Watersheds

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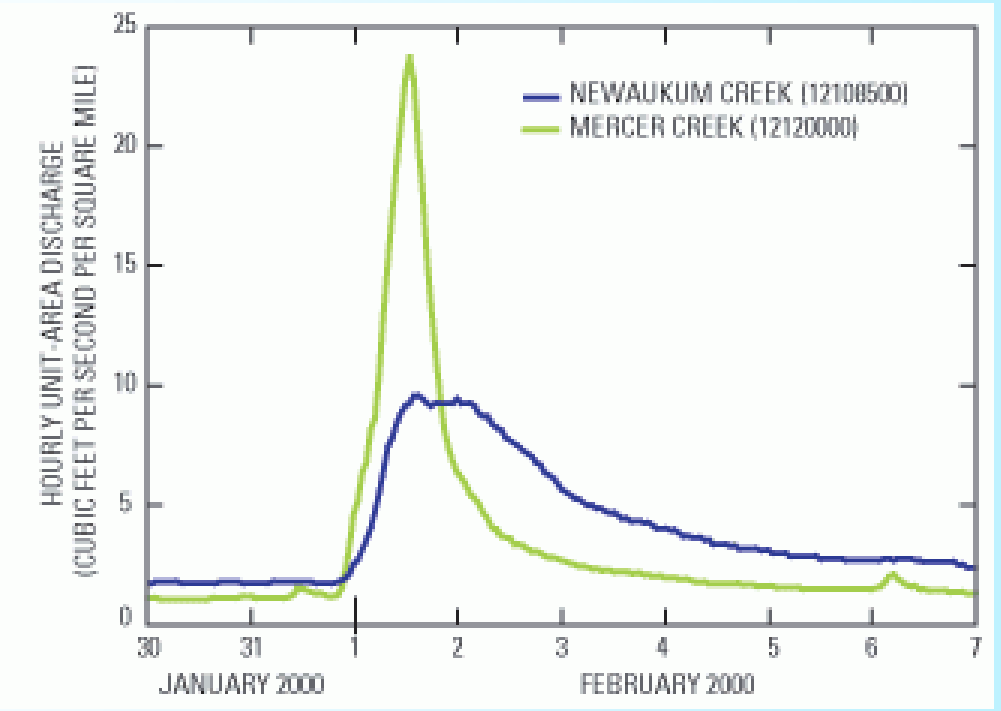
- **Urban Mercer Creek**
  - Streamflow increases more quickly
  - Higher Peak Flow
  - Lower Baseflow
  - Flash Floods
  - Increased Erosion
- **Forested Newaukum Creek**
  - Lower peak flow – slower to rise
  - Higher base flow during periods of no rain → Supports fish



USGS

Watershed 101

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Impervious Surface Impacts to Streams

*Stream in a watershed with **8%** impervious cover.*

*Stream in a watershed with **20%** impervious cover.*

*Stream in a watershed with **30%** impervious cover.*

What is the County Doing to Protect Streams?

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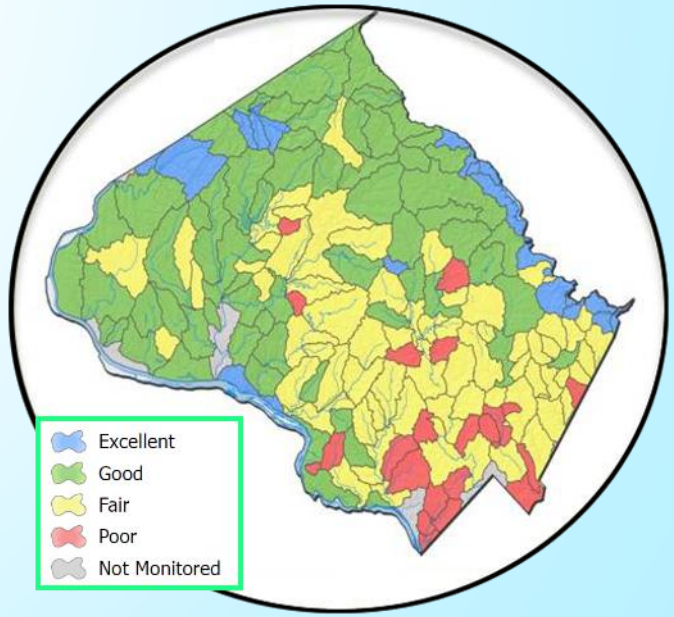
- Must meet regulatory requirements
  - Federal Clean Water Act permit program
  - MS4 permit – Municipal Separate Storm Sewer System
- Applies to all large and medium Maryland jurisdictions
- County Programs
  - Restore our streams and watersheds
    - Add runoff management
  - Meet water quality protection goals
    - Reduce pollutants entering streams
  - Education and engage stakeholders
    - Individual actions make a difference
  - Focus on watershed with greatest impacts



Project Selection

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- Located in a key watershed (Middle Potomac-Anacostia-Occoquan, tributaries within the Paint Branch Watershed) for stream restoration
- Erosion of banks threatening utilities and natural resources
- History of previous point repairs
- Opportunity for water quality and ecological improvements
- Countywide Stream Protection Strategy and Lower Paint branch Watershed Study
- Anacostia River Watershed impaired for bacteria, PCBs, trash and debris, excess nitrogen and phosphorus, low dissolved oxygen, and excess sediment

Project Site

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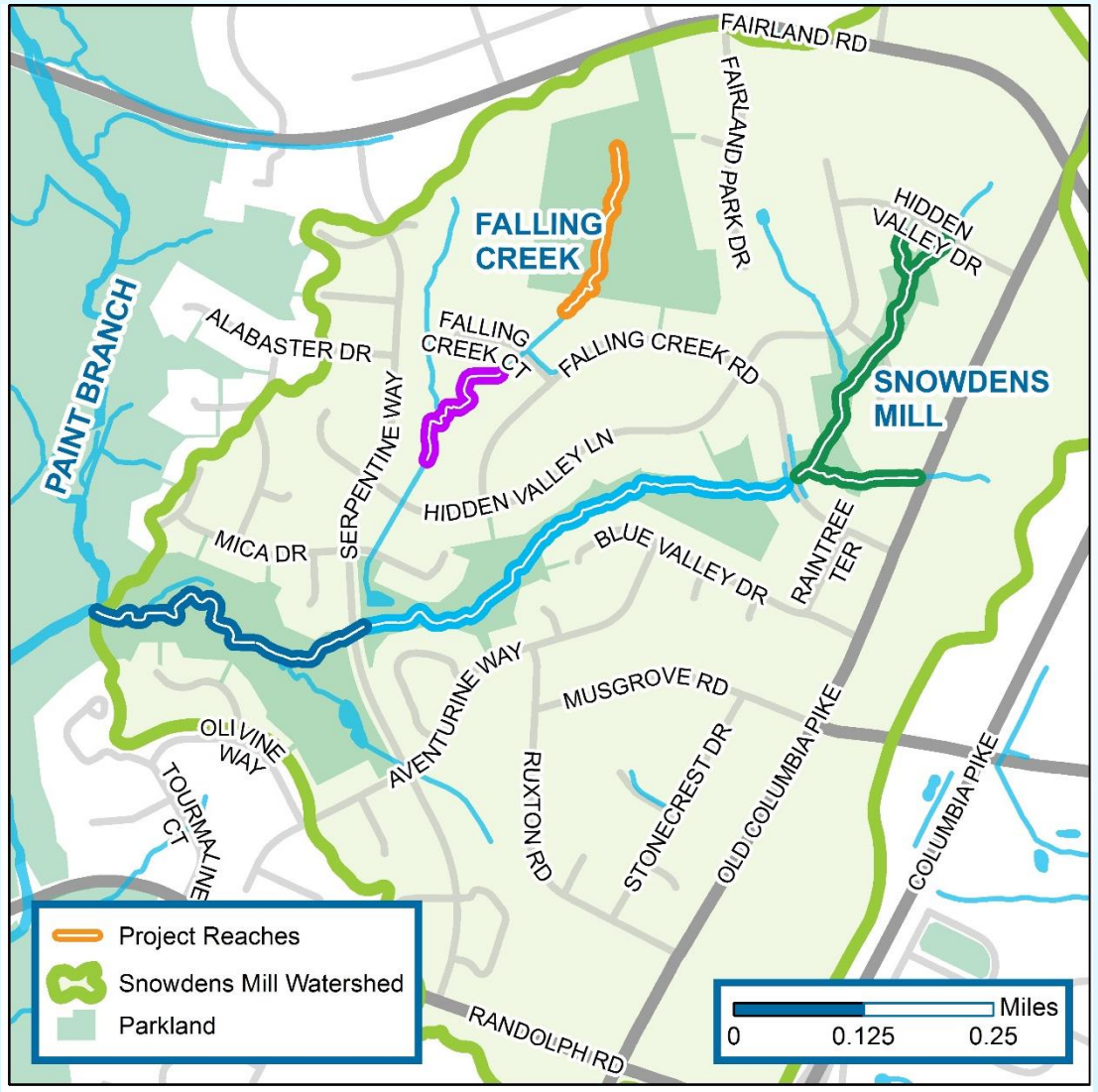

- Lower Falling Creek
- Lower Snowden's Mill
- Middle Snowden's Mill
- Upper Falling Creek
- Upper Snowden's Mill

Lower Falling Creek Reach

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Existing Conditions

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Typical conditions of Falling Creek channel in lower reach downstream of Falling Creek Ct.

Existing Conditions

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Routine erosion of channel banks and under floodplain root zone. Trees will eventually fall into the stream.

Existing Conditions

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Eroded stream banks, debris, and invasive plants in Lower Falling Creek Reach

Existing Conditions

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Channel migration to valley hill slope causing tree fall in lower section of Falling Creek (downstream of Falling Creek Court).

Restoration Goals

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- Minimize natural resources impacts
- Improve aquatic & fish habitat
- Improve water quality
- Bed and bank stabilization
- Remove non-native invasive plants (vines/shrubs) within the stream LOD

Restoration Approach

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- Snowdens Mill and Upper Falling Creek
  - Raise the existing stream bed elevation such that flood flows leave channel more-frequently to spread energy across floodplain
  - Realign a portion of the channel in Snowdens Middle Reach (upstream of Serpentine Way) to prevent future erosion and tree fall
    - Create wetlands and wildlife habitat in abandoned channel
- **Lower Falling Creek**
  - **Lower floodplain elevations such that flood flows leave channel more-frequently to spread energy across floodplain**
  - **Create riparian wetlands in the lowered floodplain that are highly-connected to groundwater**

Stream Restoration Design

(12)- Falling Creek Lower Reach

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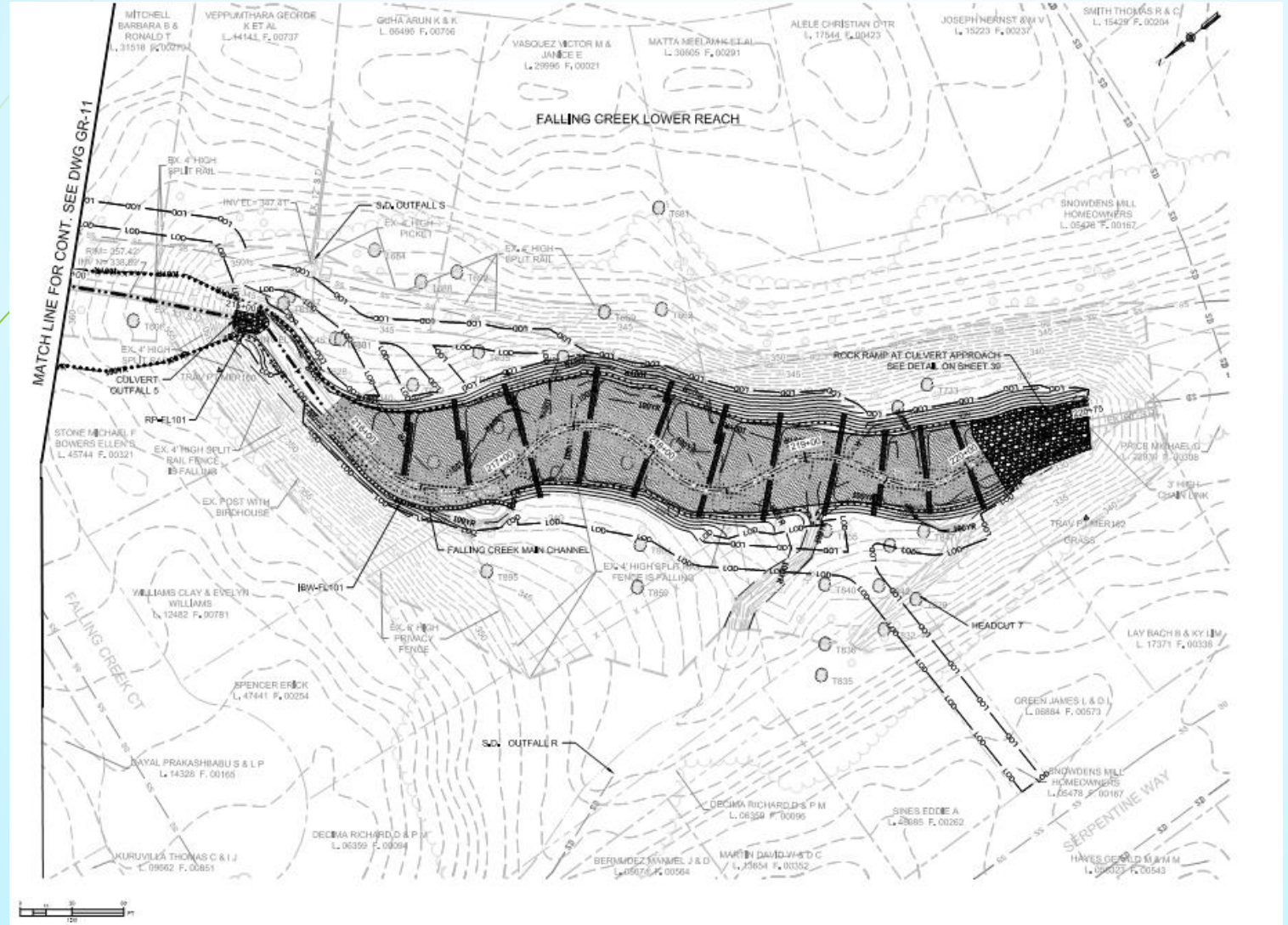

Riffle/Pool Sequence

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Log Grade Control

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Rock Ramp

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Woody Debris/Wildlife Habitat

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Integrated Stream and Wetland System

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Live Staking

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Plantings

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Reforestation

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Construction Entrances

EXAMPLE

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During Construction

After Construction

Construction

What to expect

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- **Duration**
  - Approximately 6-12 months for each stream reach/area
  - Class III Stream Closure Period – **Oct 1-April 30**
- **Construction Hours**
  - Monday through Friday, 7 AM-4 PM
- **Safety**
  - Open sides of site will be fenced with orange construction safety fence to separate construction from residents
- **Traffic**
  - Minor impacts to traffic from entering and exiting construction traffic and contractor parking during the day
- **Noise**
  - Contractor is required to comply with Montgomery County Noise Ordinance – site elevation will help alleviate noise pollution
- **Sediment**
  - Contractor is required to comply with Montgomery County Sediment Control Permit and not track onto roads

Restoration Monitoring

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- County monitoring to evaluate whether project goals are achieved will continue five years after project completion.
  - In-stream Habitat
  - Aquatic Insects
  - Fisheries

Project Schedule

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- Public Meetings – December 5, 2017 / January 23, 2018
- Final Design Plans – Fall 2018
- Construction – Spring 2019 – Fall 2020

- Cost – estimated $5,432,000 million financed by MCDEP CIP Program using funds generated through Water Quality Protection Charge

Next Steps

- Design Completion
- Permitting
- Construction

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Questions?

For more information:

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Miranda.Reid@montgomerycountymd.gov

https://www.montgomerycountymd.gov/water/restoration/snowdens-mill-falling-creek.html

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